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NASA Policy Directive

NPD 2570.5E

Effective Date: July 11, 2011

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COMPLIANCE IS MANDATORY FOR NASA EMPLOYEES[Printable Format \(PDF\)](#)

Request Notification of Change (NASA Only)

Subject: NASA Electromagnetic Spectrum Management - Revalidated 9/13/16**Responsible Office: Human Exploration and Operations Mission Directorate**

CHANGE HISTORY

Chg#	Date	Description/Comments
1	09/13/2016	Revalidated with administrative changes to clarify responsibilities and to incorporate compliance with NPR 1400.1

1. POLICY

This directive establishes policy, authorities, and responsibilities for obtaining approval for the use of the electromagnetic (EM) spectrum for any NASA mission, project, or other activity requiring the use of the EM spectrum for transmission, reception, or both, in accordance with 47 CFR Part 300.

2. APPLICABILITY

a, This NPD is applicable to NASA Headquarters and NASA Centers, including Component Facilities and Technical and Service Support Centers. This language applies to JPL (an FFRDC), other contractors, grant recipients, or parties to agreements only to the extent specified or referenced in the appropriate contracts, grants, or agreements.

b. In this directive, all mandatory actions (i.e., requirements) are denoted by statements containing the term "shall." The terms: "may" or "can" denote discretionary privilege or permission, "should" denotes a good practice and is recommended, but not required, "will" denotes expected outcome, and "are/is" denotes descriptive material.

c, In this directive, all document citations are assumed to be the latest version unless otherwise noted.

3. AUTHORITY

- The Federal Communications Act of 1934, as amended, 47 U.S.C. § 151.
- Telecommunications Act of 1996: Spectrum Management, ch. 8, 47 U.S.C. § 251.
- The Communications Satellite Act of 1962, as amended, 47 U.S.C. § 702.
- Frequency Authorization, NASA FAR Supplement and Clause 1852.223-71, 48 CFR subpt. 1823.71.
- The National Aeronautics and Space Act, as amended, 51 U.S.C. § 20113 (a).
- Transfer of Telecommunications Functions, E. O. 12046, 3 CFR 158 (1978), 47 U.S.C. § 305, note.
- OMB Circular No. A-11, Radio Spectrum-Dependent Communications- Electronics Systems, sec. 33.4, and Spectrum Relocation Fund, sec. 33.5 (2010).

4. APPLICABLE DOCUMENTS AND FORMS

- Manual of Regulations and Procedures for Federal Radio Frequency Management, 47 CFR Part 300.
- NPD 1050.1, Authority to Enter into Space Act Agreements.
- NPR 1600.1, NASA Security Program Procedural Requirements.

- d. NPR 2570.1, NASA Radio Frequency Spectrum Management Manual.
- e. NPR 7120.5, NASA Space Flight Program and Project Management Requirements.
- f. NPR 7123.1, NASA Systems Engineering Processes and Requirements.
- g. International Radio Regulations, International Telecommunication Union (ITU), published in Geneva, Switzerland.

5. RESPONSIBILITY

a. The Associate Administrator (AA) for Human Exploration and Operations Mission Directorate (HEOMD) is the NASA Spectrum Manager (SM) and is responsible for:

- (1) Implementing the requirements for NASA Radio Frequency Spectrum Management described in NPR 2570.1.
- (2) Ensuring that all NASA activities surrounding the use of the EM spectrum comply 47 CFR Part 300, ITU Radio Regulations and other national and international rules and regulations. .
- (3) Ensuring adequate NASA representation in international and national organizations and forums concerned with EM spectrum regulation and utilization.
- (4) Ensuring adequate EM spectrum is available to support all Agency programs including NASA-sponsored commercial space programs.

b. The Deputy Associate Administrator (DAA) for Space Communications and Navigation (SCaN) is responsible for:

- (1) The overall planning, policy, and administration of the NASA Spectrum Management Program.
- (2) Addressing program and policy-level spectrum issues. The NASA Headquarters offices and responsibilities supporting the DAA in determining spectrum related issues are identified in Delegation of Authority
- (3) Appointing a Director of Spectrum Policy and Planning who is responsible for the Agency's programmatic implementation of policies and applicable procedures authorized by this NPD, the overall efficacy of the program, and has overall responsibility for national and international spectrum policy and planning.

c. The Director of Spectrum Policy and Planning shall:

- (1) Designate a Deputy Director to act in his/her absence and assist in normal duties as required.
- (2) Designate an International Spectrum Program Manager and a National Spectrum Program Manager to fulfill the Agency's spectrum management responsibilities in accordance with this NPD.
- (3) Designate a NASA representative to the Interdepartment Radio Advisory Committee (IRAC) and representatives to the various IRAC subcommittees. When necessary; will also provide a nomination to the State Department for the chair of U.S. ITU-R Study Group 7 (Science Services).

d. The International Spectrum Program Manager shall carry out, under the direction of the Director of Spectrum Policy and Planning, the international spectrum management responsibilities assigned to the DAA SCaN, which are the EM spectrum activities involving entities external to the U.S., including the ITU, other non-NASA civilian space agencies (e.g., European Space Agency, Japanese Aerospace Exploration Agency, the Space Frequency Coordination Group (SFCG), and other entities external to the U.S. involved in the management of the EM spectrum.

e. The National Spectrum Program Manager shall:

- (1) Carry out, under the direction of the Director of Spectrum Policy and Planning, the domestic spectrum management responsibilities assigned to the DAA SCaN, which are the EM spectrum activities involving entities internal to the U.S., including the NTIA, the Federal Communications Commission, and other national entities involved in the management or regulation of the EM spectrum.
- (2) Ensure, in consultation with the applicable Center/Facility Spectrum Management Offices, that all frequency assignments are carefully reviewed as directed by the Director of Spectrum Policy and Planning or his/her designee, to determine if they should fall under the Controlled Unclassified Information (CUI) Category and/or should be Freedom of Information Act (FOIA) exempt in accordance with NPR 1600.1.
- (3) Ensure, in consultation with the International Spectrum Program Manager, that the Spectrum Management Implementation Plan, five-year Plan, and Long-Range Plan are reviewed and updated annually, if necessary, and cooperate in assisting the NTIA in its Federal Spectrum Strategic Plan effort.
- (4) Identify any programs at risk due to possible lack of spectrum allocations or the non-sustainability of these allocations because of commercial encroachment and/or possible electromagnetic interference (EMI) conflicts.

f. The Headquarters Mission Directorates and Offices, as specified in Attachment A, shall each appoint a spectrum liaison who will coordinate the spectrum-related activities and requirements within their Directorate or office; provide those spectrum requirements to the Director of Spectrum Policy and Planning or designee; and provide support and representation to SCA Board of Directors meetings, as necessary, for addressing senior spectrum issues.

g. The Center Directors and the JPL (an FFRDC) Director shall:

(1) Ensure that all Center/Facility long-term (i.e., ten years or greater) spectrum requirements are reported annually to the Director of Spectrum Policy and Planning for assessments to determine the need for additional spectrum allocations.

(2) Ensure that all missions, projects, and other activities requiring use of the EM spectrum submit to the Center/Facility SM a request for spectrum certification, that these requests are submitted to the NTIA, through NASA Headquarters, as early in the procurement cycle as possible, and for space and major communications-electronics systems, the spectrum certification requests will include cost estimates and economic alternatives in accordance with national policy (Office of Management and Budget (OMB) Circular A-11).

(3) Ensure the EM integrity of the property on which the Center or JPL (an FFRDC) and its Component Facilities are located, including protecting the property from EM interference.

(4) Implement the policies, applicable procedures, and spectrum management functions at the Center or JPL (an FFRDC) and Component Facilities in accordance with this NPD and NASA Procurement policies to ensure that spectrum-dependent missions, programs, or activities do not receive funding without approval from the Center SM. However, a waiver may be granted by the DAA SCA through the applicable Center SM and Director of Spectrum Policy and Planning.

(5) Ensure that all RF-related procurements (radio-based communications systems, wireless systems, which include: LAN, WAP, Wi-Fi, Bluetooth, walkie-talkies, wireless microphones; active or passive remote-sensing systems; all systems employing satellite (space) techniques; and any associated Earth-station sites and facilities) are made with the approval of the applicable Center/Facility SM and are in compliance with NASA and Federal regulatory policies.

(6) Designate a civil servant or JPL (an FFRDC) employee as Center/Facility SM to perform the spectrum management function, and an alternate Center/Facility SM to assist and provide backup to the primary Center SM.

(7) Ensure continuity of Center/Facility Spectrum Management by developing and maintaining a plan for Center/Facility SM succession, which is submitted annually to the Director of Spectrum Policy and Planning.

(8) Provide the funding required to fulfill the Center/Facility's spectrum management responsibilities in accordance with this policy.

(9) Ensure that communication outside of NASA on spectrum-related matters has been coordinated and approved by the Director of Spectrum Policy and Planning or designee.

h. The GSFC SM shall assist other Center/Facility SMs in investigating incidences of RF interference that may occur in the 2025-2110 MHz and 2200-2290 MHz bands. GSFC will consult with JSC and JPL (an FFRDC) for protection requirements of human spaceflight and the Deep Space network (DSN), respectively.

i. The Center/Facility SMs shall:

(1) Function as the interface between its Center/Facility missions and the other Center/Facility SMs.

(2) Ensure that all missions, projects, and other activities, requiring use of the EM spectrum, submit a request for spectrum certification, which will be submitted to the NTIA, through NASA Headquarters, as early in the acquisition and procurement cycles as possible.

(3) Ensure that these submissions are compliant with domestic (NTIA Manual) and international (ITU Radio Regulations) regulations, and SFCG recommendations. A waiver of this requirement may be granted by the Director of Spectrum Policy and Planning, through the applicable Center SM.

(4) Ensure that all NASA Center/Facility spacecraft requirements for use of the S-Band (2025 - 2110 MHz and 2200-2290 MHz) are provided to the National Spectrum Program Manager and the GSFC SM for their review and approval.

(5) Ensure that all spacecraft frequency requirements are provided to JPL (an FFRDC) for deep space missions and to JSC for human spaceflight missions to assist in the selection of frequencies, consistent with sections 1(m) and 1(n), respectively.

(6) Ensure that Project managers account for the time required by GSFC to identify usable S-band frequencies and

the JPL (an FFRDC) to identify usable deep space frequencies in the schedule and milestones of flight projects at their Center/Facility.

(7) Ensure that new missions meet the protection requirements of the DSN prior to making frequency selection and assignments in order to prevent costly operational coordination later and that information on the protection requirements of DSN is referred to the JPL (an FFRDC) SM.

(8) Coordinate frequency use for NASA missions, programs, and projects at their respective Center.

(9) Advocate, through NASA Headquarters, modifications to the existing frequency allocations to enable new space and science applications activities.

j. All missions, programs, projects, and other activities requiring use of the EM spectrum, shall:

(1) Discuss spectrum considerations at each review in the project life cycle (as required in NPR 7123.1 and NPR 7120.5) and submit a request for spectrum certification as early in the acquisition and procurement cycles as possible to its Center SM.

(2) Not obligate funds for formal engineering (as determined by the Center Director), development and testing, or procurement of operational EM-radiating or receiving devices until the spectrum certification is approved by the National Telecommunications and Information Administration (NTIA) and the approval is provided to the appropriate program office and Center/Facility SM.

(3) Use the EM spectrum as efficient as practical to meet their requirements by the design and use of advanced spectrum-efficient technologies (e.g., software-defined radios, cognitive radios, and smart antennas) and advanced modulation and coding techniques.

(4) Use frequency bands that are properly allocated for their intended use unless permission to operate in another band is granted by the Director of Spectrum Policy and Planning.

(5) Ensure that all spacecraft be equipped with mechanisms to remotely cease EM emissions unless there is a human presence with this direct capability. If the spacecraft has an automatic capability to cease transmissions, a waiver of this requirement may be granted by the Director of Spectrum Policy and Planning, through the applicable Center SM.

(6) Ensure that non-Federal entities placed in control of NASA transmitters operating in Federal bands (e.g., 2200-2290 MHz) have sufficient contractual constraints to ensure those transmissions are operated in accordance with NASA direction.

(7) Ensure that non-Federal entities using Federal spectrum only use that spectrum for NASA requirements, absent specific authorization otherwise.

(8) Not design, procure or operate devices which are intended to transmit in exclusive passive radio frequency (RF) bands allocated, either nationally or internationally, to the radio astronomy service, the Earth exploration- satellite service (passive), or the space research service (passive).

6. DELEGATION OF AUTHORITY

a. Associate Administrator for Human Exploration and Operations Mission Directorate (HEOMD). The AA for HEOMD shall appoint a HEOMD Spectrum Liaison who will coordinate the human exploration and operations programs for the International Space Station and for all current and future operational human spaceflight missions as well as the exploration program's spectrum and communications requirements, for both robotic and human spaceflight missions and provide the spectrum requirements of those missions to the Director of Spectrum Policy and Planning or designee.

b. Associate Administrator for Space Technology Mission Directorate (STMD). The AA for STMD shall appoint a STMD Spectrum Liaison who will coordinate the space technology program's spectrum and communications requirements for technology demonstration missions and provide those spectrum requirements to the Director of Spectrum Policy and Planning or designee.

c. Associate Administrator for Science Mission Directorate (SMD). The AA for SMD shall appoint a SMD Spectrum Liaison who will coordinate the science program's communications and remote-sensing (both active and passive) requirements and provide those spectrum requirements to the Director of Spectrum Policy and Planning or designee.

d. Associate Administrator for Aeronautics Research Mission Directorate (ARMD). The AA for ARMD shall appoint an ARMD Spectrum Liaison who will coordinate the aeronautics program's radio navigation, remote control, telemetry, and communications requirements and provide those spectrum requirements to the Director of Spectrum Policy and Planning or designee.

e. Associate Administrator for the Office of International and Interagency Relations (OIIR). The AA for OIIR shall appoint an OIIR Spectrum Liaison who will initiate formal bilateral agreements governing the use of EM spectrum resources with entities outside the United States (U.S.) and its possessions in accordance with NPD 1050.1 and other U.S. laws and regulations, as applicable, consulting with the U.S. Department of State as appropriate. The OIIR Spectrum Liaison shall coordinate activities with the Director of Spectrum Policy and Planning or designee.

f. Associate Administrator for the Office of Legislative and Intergovernmental Affairs (OLIA). The AA for OLIA shall appoint an OLIA Spectrum Liaison who will initiate any contacts concerning the use of EM spectrum resources with entities of the U.S. Congress, its committees, subgroups, or staff. The OLIA Spectrum Liaison shall coordinate activities with the Director of Spectrum Policy and Planning or designee.

7. MEASUREMENT/VERIFICATION

a. Compliance with the policies set forth in this Directive shall be measured through the following:

(1) Ensure that all RF-related procurements (radio-based communications systems, wireless systems, which include: LAN, WAP, Wi-Fi, Bluetooth, walkie-talkies, wireless microphones; active or passive remote-sensing systems; all systems employing satellite (space) techniques; and any associated Earth station sites and facilities) are made with the approval of the applicable Center/Facility SM and are in compliance with NASA and Federal regulatory policies. (This is assurance that Agency personnel do not engage in any commitments that may be in violation of NASA or Federal policies or regulations).

(2) Ensure that NASA does not cause EM interference at NASA Centers and JPL (an FFRDC) or in the environment surrounding NASA Centers and JPL (an FFRDC).

(3) Ensure that all NASA frequency assignment actions are accurate and completed in time to meet mission requirements.

(4) Regularly review Government frequency assignment actions for their impact on NASA's ability to carry out its missions.

(5) Complete required five and ten-year frequency assignment reviews in a timely manner.

(6) Ensure that all NASA system certification requests are accurate and processed through the NTIA IRAC Spectrum Planning Subcommittee in time to meet mission requirements.

(7) Review non-NASA Government systems certification requests by the IRAC Spectrum Planning Subcommittee for their impact on NASA's ability to carry out its missions.

(8) Ensure that the international registration of all NASA systems are accurate and processed through the IRAC Space Systems Subcommittee in time to meet mission requirements.

(9) Review non-NASA international systems considered by the IRAC Space Systems Subcommittee for their impact on NASA's ability to carry out its missions.

(10) Ensure that all NASA RF assignments have been reviewed by their respective Center/Facility SM to determine if they should be exempt from FOIA due to their sensitivity or mission essential nature and, so marked, if necessary.

(11) Ensure that all Center/Facility long-term spectrum requirements are reported to the NASA Headquarters Spectrum Management Office.

8. CANCELLATION

NPD 2570.5D, NASA Electromagnetic Spectrum Management, dated October 17, 2005.

REVALIDATED SEPTEMBER 13, 2016 W/CHANGE 1

Charles F. Bolden, Jr.
Administrator

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